

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended): A membrane interface probe apparatus comprising:

a membrane interface probe (MIP) ~~sensor~~ housing having a ~~larger diameter than a~~
~~conventional MIP sensor~~ of at least about 2.125 inches.

Claim 2 (Currently amended): The MIP apparatus according to claim 1 wherein said ~~larger~~
~~diameter MIP sensor~~ housing is adapted for ~~direct coupling to couple to larger diameter~~ with a rod
~~systems~~ system.

Claim 3 (Currently amended): The MIP apparatus according to claim 1 wherein said ~~larger~~
~~diameter MIP sensor~~ housing ~~allows use of said MIP sensor~~ is adapted to be coupled with ~~larger~~
~~capacity push and hammer~~ systems.

Claim 4 (Currently amended): The MIP apparatus according to claim 1 wherein said ~~larger~~
~~diameter MIP sensor~~ housing ~~allows use in situations where~~ is adapted for a low sidewall support of
~~the drive rod string~~ exists applications.

Claim 5 (Currently amended): The MIP apparatus according to claim 1, wherein said ~~larger~~
~~diameter MIP sensor~~ housing is adapted to include comprises two or more permeable membranes.

Claim 6 (Currently amended): A membrane interface probe apparatus comprising at least one of:
a membrane interface probe (MIP) ~~sensor~~ housing having two or more permeable
membranes; and/or
a membrane interface probe (MIP) adapted to provide circumferential sensing.

Claim 7 (Currently amended): The MIP ~~sensor~~ housing of claim 6, wherein said two or more
permeable membranes are arranged equidistant about a circumference of said MIP ~~sensor~~ housing.

Claim 8 (Currently amended): The MIP ~~sensor~~ housing of claim 7, wherein said MIP ~~sensor~~
housing is operative to ~~improve circumferential sensing and to increase likelihood of collection of~~
volatile organic mass ~~by said MIP sensor.~~

Claim 9 (Currently amended): A membrane interface probe apparatus comprising:
a membrane interface probe (MIP) ~~sensor~~ comprising at least one of adapted to improve
~~watertight integrity by including undersea cabling~~ a waterproof electrical coupling ~~couplings and/or~~
an O-ring mechanical coupling ~~coupling~~, wherein at least one of said waterproof electrical
coupling and/or said O-ring mechanical coupling improve watertight integrity.

Claim 10 (Currently amended): A modular membrane interface probe (MIP) apparatus comprising:
a modular membrane interface probe (MIP) ~~sensor constructed from~~ comprising a plurality
of modular components allowing field serviceable replacement of any malfunctioning components
of said plurality of modular components.

Claim 11 (Currently amended): The modular MIP apparatus according to claim 10, comprising at least one of:

an external barrel having a cavity; and/or

an inner core barrel assembly field-insertable into said cavity having a heater cavity, wherein said heater cavity is adapted to receive a field-insertable removable cartridge heating element.

Claim 12 (Original): The modular MIP of claim 10, wherein said modular MIP apparatus comprises a removable conductivity nose assembly.

Claim 13 (Original): The modular MIP of claim 10, wherein said modular MIP apparatus comprises a field-insertable removable cartridge heating element.

Claim 14 (Currently amended): The modular MIP of claim 10, wherein said modular MIP apparatus comprises at least one of a waterproof electrical connector and/or an O-ring seal.

Claim 15 (Currently amended): A membrane interface probe apparatus comprising:

a membrane interface probe (MIP) ~~sensor~~ comprising a an internal removable trap ~~directly into the probe for the collection~~ adapted to collect and/or concentrate ~~concentration of one or more~~ volatile organic compounds.

Claim 16 (Currently amended): The MIP apparatus according to claim 15, wherein said removable trap is adapted to ~~enables detection of lower levels of~~ detect ~~concentration levels of~~ one or more volatile organic ~~compound~~ compounds, and ~~specific identification of~~ to specifically identify said compounds through ~~post-run~~ chromatographic analysis.

Claim 17 (Currently amended): The MIP apparatus according to claim 15, further comprising:
~~providing for a calibrator calibration of~~ adapted to calibrate said MIP sensor using chromatographic methods.

Claim 18 (Currently amended): The MIP apparatus according to claim 15, further comprising means for at least one of simultaneous-trapping and/or concentrating of volatile organic compounds during MIP sampling and logging events.

Claim 19 (Currently amended): A membrane interface probe apparatus comprising:
a membrane interface probe (MIP) ~~sensor~~ comprising a heated transfer line from a body of said MIP ~~sensor~~ to a surface detector suite ~~minimizing~~ adapted to minimize loss of volatile organic compounds in a cold transfer line.

Claim 20 (Currently amended): A membrane interface probe ~~apparatus~~ system comprising:
a membrane interface probe (MIP); ~~sensor~~ comprising
an enhanced scanning solutions ~~module~~, module operatively coupled to said MIP; and
a sample introduction system coupled to said MIP adapted to ~~reduce overall equipment footprint and cost; to introduce calibration gases; gas~~ and to allow for simultaneous sampling of a volatile organic gas stream for ~~immediate~~ chromatographic analysis.

Claim 21 (Currently amended): A membrane interface probe ~~apparatus~~ system comprising:
a membrane interface probe (MIP) adapted to gather data; ~~sensor~~ comprising
a global positioning system (GPS) receiver adapted to identify a location of said MIP;
~~integrated with~~
a data acquisition system adapted to allow ~~simultaneous geo-referencing~~ geo-reference of ~~sampling points with sample~~ said data with said location.

Claim 22 (Original): A membrane interface probe system comprising:

a membrane interface probe (MIP) sensor comprising a mobile device in wireless communication with a data acquisition system enabling near real-time transfer of data from said MIP sensor to a base station.

Claim 23 (Currently amended): The MIP system of claim 22, wherein said mobile device comprises a graphical display and a control module adapted to operate said data acquisition system operation.

Claim 24 (Original): The MIP system of claim 22, wherein said mobile device is portable.

Claim 25 (Currently amended): The membrane interface probe ~~apparatus~~ system of claim 20, wherein the enhanced scanning solutions module further comprises:

a flow control subsystem;
a detector subsystem coupled to said flow control subsystem;
a dryer/moisture separator subsystem coupled to said flow control subsystem;
a sampling subsystem coupled to said flow control subsystem; and
a software control subsystem coupled to at least one of said flow control subsystem, said detector subsystem, said dryer/moisture separator subsystem, and or said sampling subsystem.

Claim 26 (Currently amended): The membrane interface probe ~~apparatus~~ system of claim 25, wherein said sampling subsystem of the enhanced scanning solutions module comprises at least one of:

- a sample loop;
- an absorbent trap; and/or
- a gas chromatography injection port.

Claim 27 (Currently amended): The membrane interface probe ~~apparatus~~ system of claim 25, wherein the enhanced scanning solutions module further comprises at least one of:

- an exhaust;
- a pneumatic supply;
- a power supply;
- a bypass module;
- a feedback signal; and/or
- a pressure control subsystem.

Claim 28 (Currently amended): The membrane interface probe ~~apparatus~~ system of claim 20, wherein the enhanced scanning solutions module further comprises:

- a detector subsystem;
- a sampling subsystem; and
- a software control subsystem coupled to said detector subsystem, and said sampling subsystem.

Claim 29 (Currently amended): The membrane interface probe ~~apparatus~~ system of claim 28, wherein the enhanced scanning solutions module further comprises:

a dryer/moisture separator subsystem coupled to said software control subsystem.

Claim 30 (Currently amended): The membrane interface probe ~~apparatus~~ system of claim 28, wherein said sampling subsystem of the enhanced scanning solutions module comprises at least one of:

a sample loop;
an absorbent trap; and/or
a gas chromatography injection port.

Claim 31 (Currently amended): The membrane interface probe ~~apparatus~~ system of claim 28, wherein the enhanced scanning solutions module further comprises at least one of:

an exhaust;
a pneumatic supply;
a power supply;
a bypass module;
a feedback signal; and/or
a pressure control subsystem.

Claim 32 (Previously Presented): The membrane interface probe ~~apparatus~~ system of claim 28, wherein said enhanced scanning solutions module comprises on-the-fly reconfigurability, and further comprises:

a plurality of operator-selectable modes.

Claim 33 (Previously Presented): The membrane interface probe ~~apparatus~~-system of claim 28, wherein said enhanced scanning solutions module further comprises:

a plurality of pre-programmable operating modes that interactively reconfigures to perform any of a plurality of functions, subject to particular conditions.

Claim 34 (Currently amended): The membrane interface probe ~~apparatus~~-system of claim 28, wherein said enhanced scanning solutions module further comprises:

an interface between said detector subsystem and a gas handling subsystem allowing insertion of at least one of: a sample, another detector, a flowpath, a flow path rate, a dryer, an exhaust, a feedback, and/or a trap.

Claim 35 (Currently amended): The membrane interface probe ~~apparatus~~-system of claim 28, wherein said software control subsystem of the enhanced scanning solutions module comprises at least one of:

a data logger;
a sequencer;
a valve control system;
a monitor;
a display; and/or
a recording function.